

Loosely coupled means an attribute of systems, referring to an approach to designing interfaces across systems, subsystems, or components to reduce the interdependencies between them—in particular, reducing the risk that changes within one system, subsystem, or component will create unanticipated changes within other system, subsystem, or component.

Materials handling refers to explicit instructions for handling safety-critical components established to comply with procedures specified by the railroad.

New or next-generation locomotive control system means a locomotive control system using technologies or combinations of technologies that are not in use in revenue service, products that are under development as of October 9, 2012, are placed into service prior to October 9, 2015, or products without established histories of safe practice.

Product means any safety critical electronic locomotive control system, subsystem, or component, not including safety critical processor based signal and train control systems, whose functions are directly related to safe movement and stopping of the train as well as the associated man-machine interfaces irrespective of the location of the control system, subsystem, or component.

Revision control means a chain of custody regimen designed to positively identify safety-critical components and spare equipment availability, including repair/replacement tracking.

Safety Analysis refers to a formal set of documentation which describes in detail all of the safety aspects of the product, including but not limited to procedures for its development, installation, implementation, operation, maintenance, repair, inspection, testing, and modification, as well as analyses supporting its safety claims.

Safety-critical, as applied to a function, a system, or any portion thereof, means the correct performance of which is essential to safety of personnel or equipment, or both; or the incorrect performance of which could cause a hazardous condition, or allow a hazardous condition which was intended to be prevented by the function or system to exist.

Subsystem means a defined portion of a system.

System refers to any electronic locomotive control system and includes all subsystems and components thereof, as the context requires.

Test facility means a track that is not part of the general railroad system of transportation and is being used exclusively for the purpose of testing equipment and has all of its public grade crossings protected.

Tightly Coupled means an attribute of systems, referring to an approach to designing interfaces across systems, subsystems, or components to maximize the interdependencies between them. In particular, increasing the risk that changes within one system, subsystem, or component will create unanticipated changes within other system, subsystem, or component.

§ 229.307 Safety analysis.

(a) A railroad shall develop a Safety Analysis (SA) for each product subject to this subpart prior to the initial use of such product on their railroad.

(b) The SA shall:

(1) establish and document the minimum requirements that will govern the development and implementation of all products subject to this subpart, and be based on good engineering practice and should be consistent with the guidance contained in appendix F of this part in order to establish that a product's safety-critical functions will operate with a high degree of confidence in a fail-safe manner;

(2) Include procedures for immediate repair of safety-critical functions; and

(3) Be made available to FRA upon request.

(c) Each railroad shall comply with the SA requirements and procedures related to the development, implementation, and repair of a product subject to this subpart.

§ 229.309 Safety-critical changes and failures.

(a) Whenever a planned safety-critical design change is made to a product that is in use by a railroad and subject to this subpart, the railroad shall:

(1) Notify FRA's Associate Administrator for Safety of the design changes made by the product supplier;